

East Fork Coquille Watershed Analysis

Executive Summary [May 2000]

The East Fork Coquille analysis area is one of seven REO 5th field watersheds comprising the Coquille River Basin. BLM manages 45,448 ac. (53%) of the total 85,785 ac. in the analysis area, while the Coquille Forest comprises 1,367 ac. (1.6%). The remainder is owned by timber companies and private residents. Approximately 21% of BLM lands are in the Matrix land use allocation, either General Forest Management Areas (GFMA) or Connectivity (CONN). The remainder is Late-Successional (LSR), Marbled Murrelet (MMR), and Riparian (RR) Reserves. Management of private forest lands generally is for commercial timber products and agriculture/grazing occurs on alluvial terraces adjacent to the mainstem river and its tributaries.

The analysis area is within the Oregon Coast Range, near its southern boundary (with the Klamath Mountains). Bedrock exposures include marine sedimentary and volcanic formations. The climate is typical for the Southern Oregon Coast. Soils have formed from weathering of (mainly) sedimentary parent rock. The most outstanding variation soils display is their effect on water turbidity, which is based on differences in parent material.

EROSION

The dominant erosional process has been mass wasting (landslides). Landslide occurrence rates are related to underlying geologic formation. Landslides occur disproportionately on land underlain by Tyee and Flourney formations, which comprise ≈25% of the watershed.

Management objectives include limiting soil compaction, surface erosion, and degradation of organic matter components. Compacted areas from roads on BLM lands amount to 1.19% of the land base. Compacted surfaces from timber harvest was estimated to be between three and five percent of the total watershed.

There is a strong correspondence between extremely steep landforms and landslide locations, with nearly 60% of recorded landslides originated on slopes steeper than 65%, which account for only 18% of the watershed acreage.

HYDROLOGY

Hydrologic conditions include rapid runoff because of shallow soil, limited soil water storage, and bedrock units resistant to groundwater accumulation. Flow volumes are typical of Coast Range streams. Peak flows depend on the occurrence of frontal storms. Snow can accumulate temporarily in higher elevations, and when warm rain events (Chinooks) melt snow rapidly,

peak flows can be increased. Upper East Fork Coquille, Camas Creek and Brummit Creek subwatersheds are most susceptible to this phenomenon. These subwatersheds comprise ~50% of the watershed. Streams have very low summer flow and require in-channel water storage for maintenance of aquatic life.

STREAM CHANNEL

The objective for stream channels is to meet or exceed the ODFW (1994) criteria for "good" habitat with respect to all parameters in all fish-bearing reaches, as verified by aquatic habitat surveys.

Delivery of sediments and other materials from debris avalanches and rapid debris flows are the primary mechanisms for channel recruitment of sediment and high stream turbidities. Upper East Fork Coquille drainage has the highest sediment transfer hazard risk because of high drainage density, relief, and runoff (including rain-on-snow).

Bank erosion is the second most important source of sediment and stream turbidity. Throughout the Roseburg and Lookingglass geologic formations, (Elk, Weekly, Yankee Run, and Steel Creeks) fine sediments are available in the streambanks. Although most streambeds are adequately armored, fine bank material can be accessed at annual high flows or greater, or where there is lateral migration of the channel, bank collapse, and bank undercutting.

First to third Order streams in Brummit Creek and Brewster Canyon subwatersheds show the highest evidence of torrents (in-channel rapid debris flows) and road failure at channel intersections.

Roads also have confined streams to narrower channels, thereby increasing velocities and simplifying the hydrological characteristics within the channels (China Creek for example). Both natural and human-related fires and landslides have also modified riparian and stream channel characteristics dramatically. The vast majority of roads are asphalt surfaced, therefore sedimentation from roads is not a major concern.

WATER QUALITY

Prior timber harvest in riparian areas has subjected streams to diminished long-term large wood input throughout the analysis area. Increased human activities which reduce shade (timber harvest and agriculture) have caused temperature increases on the mainstem river. Roads constructed directly adjacent to streams have compounded the problem by converting riparian areas to younger seral or disturbance habitats, and increasing sediment delivery to streams. Sediment delivery and mobilization of sediments, primarily from banks, by high flows also is a problem in some areas. Roads traversing Riparian Reserves (like portions of the Coos Bay Wagon Road) where there is no surfacing, or where roads are improperly maintained, contribute sediment to streams, which impairs water quality. Water clarity returns within four days after a major storm.

Temperatures in the East Fork Coquille mainstem strongly increase in a downstream direction. The mainstem (from the mouth to the headwaters) currently is on ODEQ's 1994/96 303(d) list of water quality limited streams for exceeding the South Coast Basin temperature standard.

However, based on BLM temperature monitoring in 1997, ODEQ is recommending de-listing the river from Lost Creek to the headwaters. Summary data shows summer temperatures in the upper watershed above Camas Creek meet the temperature standard. ODEQ ambient stream monitoring shows fecal coliform levels not exceeding basin criteria for all samples (ODEQ 1994). Beneficial uses, including water contact recreation, are fully supported. This office is conducting a Water Quality Assessment and creating a Water Quality Management Plan for BLM lands in the watershed.

VEGETATION

The analysis area is in the Port-Orford-cedar variant of the western hemlock zone (Franklin and Dyrness 1973). The watershed is at the transition point of the Port-Orford-cedar variant to the wider ranging western hemlock zone. POC root rot disease is found in scattered locations throughout the area, however, the majority (79%) of the watershed can be categorized as a 'low risk' for further infection.

At present, 52% of the analysis area is comprised of young stands (≤ 40 years of age). 'Pole-timber' (41-80 years) and late-successional forests (> 80 years) each make up 22% of the forested area, while old-growth forests (201+ years) comprise 12%. Age class distribution on all federal lands mirrors that in the Reserve areas.

The oldest remaining naturally-developed stands are concentrated in the Brummit Creek subwatershed. Brewster Canyon, Camas Creek, and Upper East Fork Coquille subwatersheds also contain older naturally-developed stands. Younger stands (≥ 120 years old), naturally-developed after fires in the early- and mid-1800s, exist throughout the watershed. Unharvested stands greater than 161 years old are found solely on BLM lands.

AQUATIC HABITAT & SPECIES

Generally, there are adequate numbers of pools well distributed throughout the surveyed portions of East Fork Coquille tributaries. Most reaches which rated poor with respect to the pool area and/or pool frequency benchmarks are Rosgen type A or Aa+ channels, where pools typically are not well represented due to the steep gradients. With the exception of Steel Creek and Camas Creek, the surveyed tributaries are in good condition with regard to width-to-depth ratio. However, Steel Creek and Camas Creek have incised to bedrock and subsequently have widened through bank erosion. The high width-to-depth ratios result from low summer flows over bedrock substrates. This condition also is typical of unconstrained reaches of the mainstem river. A high width-to-depth ratio is problematic, because the increase in surface area renders the stream more susceptible to warming. High stream temperatures are determined to be a major limiting factor for summer rearing of juvenile salmonids.

There is an overabundance of fine sediments (silt, sand, and organic material) in riffles of Weekly, Yankee Run, Dead Horse, and Knepper Creeks. This problem is the result of excessive fine-sediment delivery and/or a stream's inability to adequately sort, store, and transport fine sediments.

Weekly, Elk, Yankee Run, Hantz and lower Steel Creeks are deficient in the quantity and quality of LWD present. Large conifers (> 20 " DBH) generally are scarce in the associated

riparian areas, and there is little current recruitment of large wood to streams in these drainages, primarily due to the history of fire and logging, and the resultant young and maturing stands. Loss of complex pool habitat for over-wintering of juvenile salmonids is determined to be a major limiting factor.

TERRESTRIAL AND RIPARIAN HABITAT & SPECIES

Current habitat conditions are generally characterized by hard edges (distinct contrast between adjacent stands) and small patch sizes. The majority of the analysis area (70%) supports second growth plantations (≤ 60 years old). Late-successional and old-growth patches are found almost exclusively on BLM lands. Currently 41% of BLM lands are in stands >80 years of age (late-successional) which includes 24% that are >160 years of age.

Past management activities generally have changed the landscape patterns across the analysis area. Key habitats, such as late-successional and old-growth forests, and key habitat components (snags/down logs and vegetative complexity) have been impacted by fragmentation. Thus, species of management concern have been exposed to more environmental extremes.

A total of 50 species of management concern (federally threatened/endangered species, BLM sensitive species, Survey and Manage/Protection Buffer species, and species of local concern) are known or suspected to occur in the analysis area. There are at least 16 known occupied marbled murrelet sites (no marbled murrelet surveys have been conducted in the LSR; all of these were found in Matrix lands), and 15 sites of northern spotted owls (4 in Matrix, 11 in reserves), as well as observations of bald eagle and peregrine falcon.

Past management actions most likely have altered species composition as well as habitats over time. Affects include: fragmentation and loss or change of key habitat components, alteration of disturbance regimes, disturbance or harassment during critical life functions, and the introduction of exotic species.

Noxious weeds (scotch broom, french broom, and gorse) occur, but with few exceptions, are scattered in relatively small (<200 individuals), isolated locations. Other noxious weeds (Canada thistle, Klamath weed, tansy ragwort, bull thistle) also are present, but are not in sufficient numbers to be of management concern. These are being managed through bio-control efforts, or are not expected to increase in population.

HUMAN USES

Major human uses are timber production, hunting, fishing, dispersed recreation, agriculture/grazing, and commercial and recreational travel. The small communities of Dora and Sitkum are located in the watershed along the mainstem.

Private timber companies are starting to harvest a second rotation from their forest lands. This document details prioritization of GFMA and CONN regeneration harvest units on BLM-managed lands.

Potential development of dispersed recreation and interpretive opportunities include the Coos Bay Wagon Road and hiking trails.

There are three management priorities for the BLM road system; road closures, culvert repair or replacement, and road maintenance. The current open road density on BLM land is 3.93 mi./mi². Closure (through installation of physical barriers) of 71.8 mi. of roadway identified in this document would result in a BLM open road density of 2.64 mi./mi². Based on hydrologic risk analysis, 17 culverts (crossing 2nd order and greater streams) have been identified as needing replacement. However, more culverts may need to be replaced as total road surveys are completed. Five culverts were identified as fish passage barriers. Five road segments (totaling 6.41 mi.) have been identified for road drainage and surface improvements through the TMO process.

RIPARIAN RESERVE EVALUATION

In accordance with the Aquatic Conservation Strategy (ACS), the analysis team evaluated Riparian Reserves in the analysis area. Species of concern and their habitats are identified and their needs discussed. Also identified are physical and biological values, potential natural and human-caused hazards to those values and susceptibility from management activities in these reserve lands.

A main management focus is on intermittent streams. The criteria used to define upper and lower intermittent stream boundaries are discussed, as are those used to delineate final riparian reserve boundaries along intermittent streams. Based on this discussion, several areas were identified where interim boundaries might be modified. However, the team concluded that site-specific analysis will be required in order to determine the suitability of a given management action for implementation in a Riparian Reserve.

RECOMMENDATIONS

The Recommendations section (VIII) completes the analysis by synthesizing results of all other steps. Recommendations link the Issues and Key Questions identified in Section II with watershed processes identified in Sections III through VII. Specific management recommendations are detailed which respond to these watershed processes.

EAST FORK COQUILLE WATERSHED ANALYSIS

TABLE OF CONTENTS

EXECUTIVE SUMMARY	Executive Summary -	i
SECTION I - INTRODUCTION	I -	1
SECTION II - ISSUES AND KEY QUESTIONS		
ISSUE 1 Maintain or Enhance Terrestrial Habitat to Provide For Late-successional Wildlife And Botanical Species.	II -	2
ISSUE 2 Maintain or Enhance Aquatic Habitat to Provide For Salmonid Fisheries And Aquatic Species.	II -	3
ISSUE 3 Provide Recreational Opportunities to Meet a Varied Experience.	II -	4
ISSUE 4 Identify Areas For Potential Harvest of Timber And Other Forest Products. ...	II -	4
ISSUE 5 Evaluate The Condition of Riparian Reserves as They Relate to Management Decisions.	II -	5
SECTION III - PHYSICAL CHARACTERISTICS		
III.1 - LOCATION	III -	4
III.2 - OWNERSHIP AND LAND USE ALLOCATIONS	III -	4
III.3 - GEOLOGY	III -	6
III.4 - SOILS	III -	8
III.5 - CLIMATE	III -	13
III.6 - GEOMORPHOLOGY	III -	14
III.7 - EROSION PROCESSES	III -	15
III.8 - HYDROLOGIC PROCESSES	III -	27
III.9 - DISTURBANCE PROCESSES	III -	37
SECTION IV - AQUATIC ECOSYSTEM		
IV.1 - WATER QUALITY	IV -	4
IV.2 - AQUATIC HABITAT	IV -	20
IV.3 - AQUATIC SPECIES	IV -	28
SECTION V - TERRESTRIAL AND RIPARIAN ECOSYSTEM		
V.1 - VEGETATION	V -	4
V.2 - TERRESTRIAL AND RIPARIAN HABITAT	V -	14
V.3 - SPECIES OF MANAGEMENT CONCERN	V -	28

V.4 - NON-NATIVE PEST SPECIES	V - 40
PORT-ORFORD-CEDAR ROOT ROT	V - 40
NOXIOUS WEEDS	V - 43

SECTION VI - HUMAN USES

VI.1 - GENERAL	VI - 3
VI.2 - COMMERCIAL	VI - 10
TIMBER HARVEST	VI - 10
OTHER FOREST PRODUCTS	VI - 12
VI.3 - TRANSPORTATION AND UTILITIES	VI - 14

SECTION VII - RIPARIAN RESERVE EVALUATION

VII.1 - CHARACTERIZATION	VII - 3
VII.2 - RIPARIAN RESERVE VALUES	VII - 17
VII.3 - SYNTHESIS AND INTERPRETATION	VII - 22

SECTION VIII - RECOMMENDATIONS

VIII.1 - PHYSICAL CHARACTERISTICS	VIII - 2
VIII.2 - AQUATIC ECOSYSTEM	VIII - 3
VIII.3 - TERRESTRIAL AND RIPARIAN ECOSYSTEM	VIII - 4
VIII.4 - HUMAN USES	VIII - 8
VIII.5 - RIPARIAN RESERVE EVALUATION	VIII - 12

REFERENCES CITED	References - 1
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LIST OF TABLES

Table III.1	- Ownership and Riparian Reserve Acreage	III - 5
Table III.2	- Main Soil Map Units	III - 8
Table III.3	- Physical Characteristics of Main Soil Types	III - 11
Table III.4	- Limitations of Main Soil Map Units	III - 12
Table III.5	- Stream Order Miles by Subwatershed	III - 15
Table III.6	- Landslide Index for Geologic Formations	III - 19
Table III.7	- Landslide Index for Soil Map Units	III - 20
Table III.8	- Percentage of Compacted Lands due to Roads by Subwatershed	III - 26
Table III.9	- Bankfull and Extreme Streamflow Rates (cfs) by Subwatershed	III - 30
Table III.10	- Converted Forest Stand Acreage by Subwatershed	III - 35
Table III.11	- Modern Fire Frequencies and Extent by Decade	III - 40
Table III.12	- Logging Disturbance by Decade	III - 44
Table III.13	- Disturbances and their Affect on Vegetation Patterns	III - 45
Table IV.1	- Turbidity Monitoring Station Locations	IV - 8
Table IV.2	- ODEQ 1994-1997 Temperature Monitoring Summary	IV - 15
Table IV.3	- BLM 1997 Summer Temperature Monitoring Summary	IV - 16
Table IV.4	- Aquatic and Riparian Species of Ecological Concern	IV - 29
Table V.1	- Current Forest Age Class Distribution	V - 7
Table V.2	- Average Snags/Acre and Volume Down Logs/Acre (All Decay Classes) in Naturally Regenerated Stands in the Coast Range.	V - 17
Table V.3	- Late-Successional Habitat Acreage	V - 21
Table V.4	- Wildlife Species Of Concern	V - 28
Table V.5	- Current and Projected Dispersal Habitat Extent for Northern Spotted Owls	V - 31
Table VI.1	- Harvest Levels of Special Forest Products in the Myrtlewood Resource Area for FY 1986, 1991, 1996, and 1997.	VI - 13
Table VII.1	- Ecological Classification for Species Of Concern	VII - 10
Table VII.2	- Hazards to Values Associated with Riparian Reserves	VII - 20
Table VII.3	- Evaluation of the Susceptibility of Various Hazards to Increases in Rate or Magnitude Following a Given Management Activity	VII - 25
Table VIII.1	- Density Management Acres by Category	VIII - 5
Table VIII.2	- Management Actions for Survey and Manage/Protection Buffer Species	VIII - 7
Table VIII.3	- Method, Purpose, and Miles of Roads Recommended for Closure	VIII - 11
Table VIII.4	- Roads Recommended for Culvert Replacement	VIII - 12
Table VIII.5	- Roads Recommended for Maintenance	VIII - 12

LIST OF FIGURES

Figure III.1	- Proportion of main soil types.	III - 10
Figure III.2	- Mean yearly precipitation.	III - 14
Figure III.3	- Index of landslides originating from roads by photo year, divided into delivery types.	III - 21
Figure III.4	- Typical storm event hydrograph (West Fork Brummit Creek, Nov. 25 - Dec. 22, 1995).	III - 29
Figure III.5	- Mean monthly flow (derived from USGS Gauge Station 14327000).	III - 31
Figure III.6	- Daily flow duration (based on USGS Gauge Station 14327000).	III - 32
Figure III.7	- Magnitude and probability of annual low flow (derived from USGS Gauge Station 14327000).	III - 33
Figure IV.1	- Turbidity monitoring results for Winter 1995-1996.	IV - 9
Figure IV.2	- Index of sediment transport efficiency by subwatershed.	IV - 9
Figure IV.3	- OWRD permitted Surface Water Rights and two-year Seven-day low flow.	IV - 13
Figure IV.4	- Fall Chinook peak counts (East Fork Coquille River lower ODFW standard reach)	IV - 32
Figure IV.5	- Steel Creek Coho (fish per mile). From ODFW standard survey reach.	IV - 32
Figure IV.6	- Coho spawning ground counts from ODFW standard reaches.	IV - 34
Figure IV.7	- Adult Coho spawning ground counts for BLM standard reaches.	IV - 34
Figure V.1	- Current forest Age Class distribution by ownership.	V - 8
Figure V.2	- Current Riparian Reserve forest Age Class distribution.	V - 9
Figure V.3	- Current subwatershed Riparian Reserve forest Age Class distribution.	V - 10
Figure V.4	- Projected forest Age Class development in Riparian Reserves.	V - 10
Figure V.5	- Projected forest Age Class development in all reserve Lands (Riparian Reserves and LSR).	V - 11
Figure V.6	- CONN Block forest Age Class distribution.	V - 20

MAPS REFERENCED

Map A.1a - East Fork Coquille General Location	III - 4
Map A.1b - Watershed Hierarchy	III - 4
Map A.2 - Subwatersheds of the East Fork Coquille Watershed	III - 4
Map A.3 - Drainage Boundaries and Acres	III - 4
Map A.4 - Land Use Allocations on Federally Administered Lands	III - 4
Map A.5 - Geologic Formations shown in Shaded Relief	III - 6
Map A.6 - Landslide Potential for Soil Map Units	III - 8
Map A.7 - Stream Orders	III - 14
Map A.8 - Shaded Topographic Relief	III - 15
Map A.9 - Recent Landslides and Geologic Formations	III - 18
Map A.10 - Slope Classes	III - 20
Map A.11 - ROSGEN Stream Channel Types	III - 28
Map A.12 - Intermittent Snow Zone Areas	III - 31
Map A.13 - Recorded Fire Occurrences from 1930 to Present	III - 39
Map A.14 - Landslides Delivering to Streams During Recent Times	IV - 7
Map A.15 - Road/Stream Crossings on 3 rd + Order Streams	IV - 10
Map A.16 - Stream Segments with High Exposure to Solar Radiation	IV - 12
Map A.17 - Stream Location and Fish Presence	IV - 21
Map A.18 - Aquatic Habitat Inventory Stream Reaches	IV - 23
Map A.19 - Current Forest Age Class Distribution	V - 7
Map A.20 - Potential Harvest Areas on Matrix Lands	V - 14
Map A.21 - Interior Forest Habitat on Federally Administered Lands	V - 18
Map A.22 - Late-Successional Links to Adjacent Watersheds on Federally Administered Lands	V - 18
Map A.23 - Dispersal Habitat on Federally Administered Lands	V - 25
Map A.24 - Modified Recreational Opportunity Spectrum on Federally Administered Lands	VI - 9
Map A.25 - Density Management Opportunities in Late Successional Reserves	VI - 11
Map A.26a - Surface Erosion Modeled with MSLE - Brewster Canyon subwatershed ..	VII - 4
Map A.26b - Mass Wasting Modeled with ISE - Brewster Canyon subwatershed	VII - 4
Map A.27a - Surface Erosion Modeled with MSLE - Brummit Creek subwatershed	VII - 4
Map A.27b - Mass Wasting Modeled with ISE - Brummit Creek subwatershed	VII - 4
Map A.28a - Surface Erosion Modeled with MSLE - Camas Creek subwatershed	VII - 4
Map A.28b - Mass Wasting Modeled with ISE - Camas Creek subwatershed	VII - 4
Map A.29a - Surface Erosion Modeled with MSLE - Elk Creek subwatershed	VII - 4
Map A.29b - Mass Wasting Modeled with ISE - Elk Creek subwatershed	VII - 4
Map A.30a - Surface Erosion Modeled with MSLE - Lower East Fork Coquille subwatershed	VII - 4
Map A.30b - Mass Wasting Modeled with ISE - Lower East Fork Coquille subwatershed	VII - 4
Map A.31a - Surface Erosion Modeled with MSLE - Upper East Fork Coquille subwatershed	VII - 4
Map A.31b - Mass Wasting Modeled with ISE - Upper East Fork Coquille subwatershed	VII - 4
Map A.32 - TPCC Fragile and Withdrawn Areas on Federally Administered Lands	VII - 4

Map A.33 - Projection for Old-Growth Forest Expansion	VII - 7
Map A.34 - Theoretical Distribution of Intermittent Channels	VII - 8
Map A.35 - Riparian Reserve and Other Special Habitat Areas on Federally Administered Lands	VII - 14

APPENDICES REFERENCED

Appendix A - Maps	III - 4
Appendix B - Geologic History	III - 6
Appendix C - Flood History	III - 31
Appendix D - Disturbance Ecology	III - 38
Appendix E - Fire History: 1534 to Present	III - 38
Appendix F - Interaction of Topography and Fire on Landscape Patterns	III - 38
Appendix G - Stream Channel Cross-Sections and Pebble Counts	IV - 7
Appendix H - Stream Habitat Survey Results	IV - 21
Appendix I - Potential Timber Harvest Units	VI - 11
Appendix J - Road Density Summary	VI - 14
Appendix K - Modeling Erosion and Mass Wasting	VII - 4
Appendix L - Site Potential Tree Height Determination	VII - 5
Appendix M - Theoretical Distribution of Intermittent Channels	VII - 8
Appendix N - Riparian Reserve Evaluation - Species of Concern Determination	VII - 10

COMMONLY USED ACRONYMS AND ABBREVIATIONS

ac	Acre
ACEC	Area of Critical Environmental Concern
ACS	Aquatic Conservation Strategy
AQ	Analysis Question
ATV	All Terrain Vehicle
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
CBWR	Coos Bay Wagon Road
cfs	Cubic Feet per Second
CIT	Coquille Indian Tribe
CONN	Connectivity/Diversity Blocks (Land Use Allocation)
DBH	Diameter at Breast Height
DEQ	Department of Environmental Quality
ERFO	Emergency Relief Federally Owned
ESA	Endangered Species Act
FOI	Forest Operations Inventory
FSEIS	Final Supplemental Environmental Impact Statement
FWS	US Fish and Wildlife Service
FY	Fiscal Year
GFMA	General Forest Management Area (Land Use Allocation)
GIS	Geographic Information System
ISE	Infinite Slope Equation
LSR	Late-Successional Reserve (Land Use allocation)
LSRA	Late-Successional Reserve Assessment
LWD	Large Woody Debris
MBF	Thousand Board Feet
mi ²	Square Mile
MMR	Marbled Murrelet Reserve (Land Use Allocation)
MRA	Myrtlewood Resource Area
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NSO	Northern Spotted Owl
NTMB	Neo-tropical Migratory Birds
NTU	Nephelometric Turbidity Unit
NWFP	Northwest Forest Plan
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
OHVs	Off-highway Vehicles

OR	Oregon
OSU	Oregon State University
OWRD	Oregon Water Resources Department
PL	<i>Phytophthora lateralis</i> , Port-Orford-cedar Root Rot
PNWRBCMC	Pacific Northwest River Basins Commission Meteorology Committee
POC	Port-Orford-cedar
PSQ	Probable Sale Quantity
PVT	Private
REO	Regional Ecosystem Office
RM	River Mile
RMP	Resource Management Plan
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
RR	Riparian Reserve (Land Use Allocation)
RTV	Red Tree Voles
SEIS	Supplemental Environmental Impact Statement
SRMA	Special Recreation Management Area
T&E	Threatened and Endangered
TMDL	Total Maximum Daily Load
TMO	Transportation Management Objective
TPA	Trees per Acre
TPCC	Timber Production Capability Classification
USDA	US Department of Agriculture
USDI	US Department of Interior
USFS	US Forest Service
USGS	US Geologic Survey
WQMP	Water Quality Management Plan

SECTION I

INTRODUCTION

This report is a first iteration watershed analysis for the East Fork Coquille 5th Field watershed, and is organized within reasonable conformity to the format described in the *Federal Guide for Watershed Analysis Ver. 2.2* (REO 1995).

Watershed analysis is a major component of the ecosystem-based management strategy mapped out in the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl* (USDI 1995a). The stated purpose of watershed analyses is to develop and document a scientifically-based understanding of the ecological structures, functions, processes, and interactions occurring within a watershed, and to identify desired trends, conditions, data gaps, and restoration opportunities. The information, recommendations, and data gaps documented in a watershed analysis are intended to be used to help plan land management activities that are appropriate for the analysis area, support the NEPA process, and direct future data collection efforts. Watershed analysis was designed as an iterative process, with reports being revised as additional information becomes available.

We are directed to take a “landscape level” view of the entire watershed in the Guide, although federally-managed lands comprise a little over half of the land base. The Guide directly addresses inclusion of private land information into watershed analysis (REO 1995:11):

Even though the Federal watershed analysis process is in no way intended to regulate non-Federal lands, analysis teams...will consider the interactions of various land ownerships in the watershed. Federal land management decisions based on the results of watershed analysis need to consider conditions and activities on adjacent non-Federal lands, especially to evaluate cumulative effects, as they affect public lands...Voluntary participation by non-Federal landowners will enhance each team's ability to...better understand the interactions of various land ownerships in the watershed....In those instances where landowners do not voluntarily choose to participate, publicly available information about topography, soils, geology, hydrology, transportation systems, and vegetation may be available, for example, through aerial photos, or state and local government records.

It is with this guidance in mind that we prepared this document. Topics addressed which included descriptions of non-federal land in the watershed are those mentioned in the guidance above; soils, geology, hydrology, roads and vegetation. Our methodology also follows the Guide; we used publicly-available aerial photographs, soils, geology and vegetation information to develop our characterizations. Information gathered by direct examination (in field visits) and specific recommendations were restricted to federally-managed land.